



SHE: Chevron-Ortho
BREAK: 3. V14
OTHER: _____

September 14, 1993

Ms. Dorothy L. Rayfield
Site Assessment
EPA Region IV
Waste Management Division
345 Courtland Street, NE
Atlanta, Georgia 30365

Subject: Chevron Orlando Site RI/FS SACM

REC'D.
SEP 16 1993
WPB-SAC

Dear Ms. Rayfield:

The purpose of this letter is to summarize the key issues which were discussed at our meeting of July 27, 1993, and to present information that was requested at the meeting. The meeting attendees include the following:

- Janette Menendez, EPA/Air
- Angel O. Berrios, EPA/Air
- Becky Fox, EPA/Waste Division
- Lee Thomas, EPA/Groundwater Protection Branch
- Brad Jackson, EPA/Superfund
- Wilda Cobb, ORC/CERCLA
- Dorothy Rayfield, EPA/Site Assessment
- Roger Carlton, ESD
- Larry Brannen, EPA/Emergency Response
- Carter Helm, Black & Veech/Oversight Contractor
- Hurlbert Wieland, Black & Veech/Oversight Contractor
- Jeff Wyatt, Chevron Chemical Company
- Houston Kempton, PTI Environmental Services
- Susan Klinzing Tobin, TASK Environmental, Inc..

The purpose of the meeting was to discuss the results of the Phase 1 sampling and the preliminary modeling, and to select locations for the Phase 2 monitor well construction. Twelve (12) monitor wells were sampled during Phase 1. Three (3) of the wells which were to be sampled had been damaged during the Removal Action and were not sampled. Benzene and ethylbenzene were detected in the samples from monitor wells located on and downgradient of the site. Lindane and parathion were detected in one onsite monitor well. Except for lindane, none of the chlorinated pesticides were detected in the groundwater samples.

The field measurement of inorganic parameters (hydrogen sulfide and ferrous iron) demonstrated that the surficial aquifer is anoxic. These anoxic conditions slow the degradation of benzene and ethylbenzene, but enhance the degradation of the pesticides.



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The preliminary results of the groundwater modeling identify the potential for the migration of groundwater contaminants beyond Orange Blossom Trail to the east. Ethylbenzene, benzene, parathion, and lindane were modeled as contaminants of interest. Monitor well construction locations were selected based on the model results.

The issue of chlorinated pesticides (other than lindane) in the groundwater was discussed in greater detail, and the errors in Table 5-4 in the Removal Action Report (BCC, 1992) were discussed. We have subsequently prepared a revised table which accurately summarizes the analytical results (for those compounds detected) for the sampling events conducted to date. This table is attached as Table 1-1. As shown in Table 1-1, chlordane was detected in low concentrations in the samples collected from three monitor wells (MW-F, MW-N, and MW-3s) during the October 1991 sampling event. Chlordane was not detected in the samples from the October 1990 sampling of MW-F and MW-N. These wells were located in source areas, and were destroyed during the Removal Action. Therefore, the wells were not sampled in April of 1993.

The contaminants of concern were also discussed, specifically with regard to the analytical methods to be used for the Phase 2 laboratory analysis. Since analytes specific to each method used for the Phase 1 analysis were detected, the EPA decided (subsequent to the meeting) to utilize the Phase 1 analytical methods for the Phase 2 groundwater sample analyses.

Mr. Lee Thomas, EPA/Groundwater Protection Branch, asked what method would be used to evaluate the pumping test data. We generally employ several methods, depending on the response of the aquifer to pumping, and the shape (or lack thereof) of the resulting time versus drawdown curve. Mr. Thomas requested specific names of methods, and we offer the following in response:

- Drawdown values will be corrected for partial penetration using the following equation (Hantush, 1964):

$$s_{pp} = \frac{114.6Q}{T} W \left(\sqrt{\frac{P_v}{P_h}} \right) \quad r/m, \quad l/m, \quad d/m, \quad y/m$$

where,

s_{pp} = partial penetration drawdown correction (- or +), in feet;

l = depth of penetration of production well, in feet;

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d = depth from top of aquifer to open hole portion of production well, in feet;

y = depth of penetration of observation well, in feet;

P_v = aquifer vertical permeability, in gallons per day per square foot;

P_h = aquifer horizontal permeability, gpd/ft²;

m = initial saturated aquifer thickness, in feet;

T = aquifer transmissivity, in gpd/ft;

Q = production well pumping rate, in gallons per minute; and

r = radial distance from production well, in feet.

- Following correction for partial penetration, the aquifer test data will be evaluated using the Theis (1935) curve matching procedure, the Cooper-Jacob (1946) straight-line method, and (if appropriate) the Boulton (1963) solution for delayed yield. The recovery data will also be evaluated (using the straight line method) for comparison with the pumping data.

The details of the pumping test were provided in the Sampling and Analysis Plan Amendment (TASK, 1993).

With regard to soil sampling, Randy Merchant, HRS, requested (through the EPA) collection of the surficial soil samples from the first 3-inches of soil. We will give the EPA advanced notice of the soil sampling event so we can coordinate selection of the soil sampling locations in the field, and will collect the surficial soil samples from the first 3-inches.

We also discussed the location of the deep monitor well. EPA expressed concerns regarding construction of the well through the source area (even though the source area has been removed). We agreed to look at the geologic logs from other wells in the area to better estimate the final depth of the well. We subsequently selected a location for the well which is slightly to the north of the Removal Action excavation, in the vicinity of the monitor well 3 cluster.

As you know, the new monitor well construction began on August 9, 1993. Finalization of the monitor well construction has been delayed pending

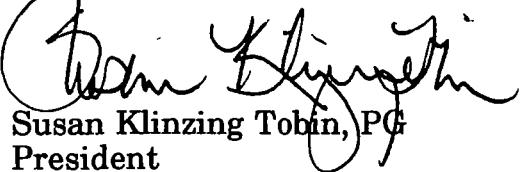
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negotiation of the access agreement with Provident Mutual Life Insurance Company of Philadelphia. We are hopeful that access will be granted by the end of this week. We are currently planning to complete the deep monitor well and some of the well development this week, and will mobilize to the Provident Mutual property on Monday, September 20. With this schedule, we will sample the monitor wells and collect the soil samples during the week of September 27th, and conduct the pumping test during the week of October 4. If we receive access approval any sooner, we will push the schedule back accordingly.

Please contact me or Jeff Wyatt if you have any questions.

Sincerely,

TASK Environmental



Susan Klinzing Tobin, PG
President

cc: J. Wyatt, Chevron Chemical
A. Davis, PTI

TABLE 1-1 SUMMARY OF GROUNDWATER DATA

CHEVRON ORLANDO SITE

OCTOBER 1990 THROUGH APRIL 1993

Well Identification	Units	MW-A Oct-90 7-17	MW-A Oct-91	MW-A Apr-93	MW-D Oct-90 7-17	MW-D Oct-91	MW-D Apr-93	MW-E Oct-90 7-17	MW-E Sep-91	MW-E Oct-91	MW-F Oct-90 22-32	MW-F Oct-91	MW-G Oct-90 23-33	MW-H Oct-90 7-17	MW-I Oct-90 7-17	MW-I Sep-91	MW-I Oct-91
Sample Date																	
Screened Interval (In FT BLS)																	
Volatile Organics																	
Benzene	ug/l	<1.0	<0.6	<0.6	<1.0	<0.6	<0.6	<100	36	<60	<1.0	<3.0	<50	97	<25	<3.0	<3.0
Toluene	ug/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	180	<100	<1.0	<5.0	<50	76	<25	7.4	12
Xylenes	ug/l	<1.0	<0.9	<0.9	<1.0	<0.9	<0.9	2500	16000	15000	15	25	920	1300	730	210	700
Ethylbenzene	ug/l	<1.0	<0.9	<0.9	<1.0	<0.9	<0.9	540	2400	2500	5.7	14	180	220	350	180	490
Methyl tert-butyl ether	ug/l	NA	<0.9	<0.9	NA	<0.9	<0.9	NA	<9.0	<90	<1.0	<4.5	NA	NA	<4.5	<4.5	<4.5
Chlorobenzene	ug/l	<1.0	<1.3	<1.3	<1.0	<1.3	<1.3	<100	<13	<130	5.1	<6.5	<50	130	<25	<6.5	<6.5
Chloroform	ug/l	<1.0	<0.4	<0.4	<1.0	<0.4	<0.4	<100	NA	<40	2.8	<2.0	<50	<25	<25	NA	<2.0
1,4-Dichlorobenzene	ug/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<10	<100	<1.0	<5.0	<50	72	<25	<5.0	<5.0
1,2-Dichlorobenzene	ug/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<10	<100	<1.0	<5.0	<50	<25	NA	<5.0	<5.0
1,3-Dichlorobenzene	ug/l	<1.0	<1.1	<1.1	<1.0	<1.1	<1.1	<100	<11	<110	<1.0	<5.5	<50	<25	NA	<5.5	<5.5
1,1-Dichloroethane	ug/l	<1.0	<0.6	<0.6	<1.0	<0.6	<0.6	<100	NA	<60	1.2	<3.0	<50	<25	<25	NA	<3.0
1,2-Dichloroethane	ug/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	NA	<100	<1.0	<5.0	<50	56	<25	NA	<1.0
1,1-Dichloroethene	ug/l	<1.0	<0.6	<0.6	<1.0	<0.6	<0.6	<100	NA	<50	1.8	<2.5	<50	48	<25	NA	<2.5
Methylene Chloride	ug/l	<1.0	<1.9	<1.9	<1.0	<1.9	<1.9	<100	NA	<190	<1.0	<9.5	<50	290	<25	NA	<9.5
1,1,2-Trichloroethane	ug/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	NA	<100	<1.0	<5.0	<50	220	<25	NA	<5.0
Bromodichloromethane	ug/l	<1.0	<0.6	<0.6	<1.0	<0.6	<0.6	<100	NA	<60	<1.0	<3.0	<50	<25	<25	NA	<3.0
Carbon Tetrachloride	ug/l	<1.0	<0.5	<0.5	<1.0	<0.5	<0.5	<100	NA	<50	<1.0	<2.5	<50	<25	<25	NA	<2.5
Chlorinated Pesticides																	
Aldrin	ug/l	<0.010	<0.05	<0.05	0.014	<0.05	<0.05	<0.50	<2.0	<0.50	<0.20	<0.05	<0.10	<0.50	<0.20	<2.0	<0.07
a-BHC	ug/l	<0.010	<0.05	<0.05	<0.010	<0.05	<0.05	<0.50	<2.0	<0.50	5.1	0.40C	0.37	2.4	<0.20	<2.0	<0.05
b-BHC	ug/l	<0.010	<0.05	<0.05	<0.010	<0.05	<0.05	0.86	<2.0	<0.50	2.1	0.25	0.14	7.7	0.36	<2.0	<0.05
d-BHC	ug/l	<0.010	<0.05	<0.05	<0.010	<0.05	<0.05	<0.05	3.2	<0.50	4.2	1.3C	0.29	<0.50	0.23	<2.0	<0.05
g-BHC	ug/l	<0.010	<0.05	<0.05	<0.010	<0.05	<0.05	<0.50	<2.0	<0.50	0.44	<0.05	0.18	1.7	<0.20	<2.0	<0.05
Chlordane	ug/l	<0.10	<1.0	<1.0	<0.10	<1.0	<1.0	<5.0	<15	<10	<2.0	3.3C	<1.0	<5.0	<2.0	<15	<1.0
4,4-DDD	ug/l	<0.020	<0.3	<0.3	<0.020	<0.3	<0.3	<1.0	<2.0	<3	<2.0	<0.3	<0.20	2.6	1	<2.0	<0.3
4,4-DDE	ug/l	<0.020	<0.10	<0.10	<0.020	<0.10	<0.10	<1.0	<2.0	<1	NA	<0.10	<0.20	<1.0	0.4	<2.0	<0.1
Dieldrin	ug/l	<0.020	<0.10	<0.10	<0.020	<0.10	<0.10	<1.0	<2.0	<1	0.67	<0.10	<0.20	<1.0	0.57	<2.0	<0.10
Endrin	ug/l	<0.020	<0.08	<0.08	<0.020	<0.08	<0.08	<1.0	<2.0	<0.8	<0.40	<0.08	<0.20	<1.0	<0.40	<2.0	<0.08
Endosulfan I	ug/l	<0.020	<0.14	<0.14	0.023	<0.14	<0.14	<1.0	<2.0	<1.0	0.15	<0.14	0.3	<1.0	<0.40	<2.0	<0.14
Heptachlor	ug/l	<0.010	<0.05	<0.05	<0.010	<0.05	<0.05	<0.50	<2.0	<0.50	0.26	<0.05	<0.10	<0.50	<0.20	<2.0	<0.05
PCB-1248	ug/l	<0.50	<0.1	<0.1	<0.50	<0.1	<0.1	<25	<5.0	<1.0	<10	<0.1	<5.0	<25	<10	<5.0	<0.1

TABLE 1-1 SUMMARY OF GROUNDWATER DATA
CHEVRON ORLANDO SITE
OCTOBER 1990 THROUGH APRIL 1993

Well Identification	Units	MW-J Oct-90 7-17	MW-J Sep-91	MW-J Oct-91	MW-K Oct-90 23-33	MW-K Oct-91	MW-L Oct-90 7-17	MW-L Oct-91	MW-M Oct-90 12-22	MW-M Sep-91	MW-M Oct-91	MW-N Oct-90 7-17	MW-N Oct-91	MW-O Oct-90 7-17	MW-P Oct-90 12-22	MW-P Oct-91	MW-P Apr-93
Sample Date																	
Screened Interval (in FT BLS)																	
Volatile Organics																	
Benzene	ug/l	62	68	55	<5.0	3.1	<100	25	<1.0	<0.6	<0.6	<1.0	<0.6	<25	<1.0	6.9	<0.6
Toluene	ug/l	88	72	74	<5.0	<5.0	<100	18	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<1.0	<1.0	<1.0
Xylenes	ug/l	750	970	1200	89	470	5500	2000	<1.0	<0.9	<0.9	<1.0	<0.9	420	<1.0	110	66
Ethylbenzene	ug/l	140	190	210	39	200	930	390	<1.0	<0.9	<0.9	1.5	<0.9	<25	<1.0	2.9	2
Methyl tert-butyl ether	ug/l	NA	<9.0	<9.0	NA	5.4	NA	<9.0	<1.0	<0.9	<0.9	NA	<0.9	NA	NA	<0.9	<0.9
Chlorobenzene	ug/l	130	130C	180C	<5.0	<6.5	<100	69C	<1.0	<1.3	<1.3	2.7	3.1C	<25	<1.0	10C	2.7(2)
Chloroform	ug/l	<50	NA	<4.0	<5.0	<2.0	<100	<4.0	NA	NA	<0.4	<1.0	<0.4	<25	<1.0	<0.4	<0.4
1,4-Dichlorobenzene	ug/l	150	14C	110C	<5.0	<5.0	49	53C	<1.0	<1.0	<1.0	1.5	<1.0	<25	<1.0	<1.0	<1.0
1,2-Dichlorobenzene	ug/l	<50	28C	55C	<5.0	<5.0	<100	27C	<1.0	<1.0	<1.0	<1.0	<1.0	NA	NA	<1.0	<1.0
1,3-Dichlorobenzene	ug/l	<50	<11	<11	<5.0	<5.5	<100	<11	<1.0	<1.1	<1.1	<1.0	<1.1	NA	NA	<1.1	<1.1
1,1-Dichloroethane	ug/l	<50	NA	<6.0	<5.0	<3.0	<100	<6.0	<1.0	NA	<0.6	<1.0	<0.6	<25	<1.0	<0.6	<0.6
1,2-Dichloroethane	ug/l	<50	NA	<5.0	<5.0	<1.0	<100	11C	<1.0	NA	<1.0	<1.0	<1.0	<25	<1.0	<1.0	<1.0
1,1-Dichloroethene	ug/l	120	NA	<5.0	<5.0	<2.5	<100	<5.0	<1.0	NA	<0.6	<1.0	<0.6	<25	<1.0	<0.6	<0.6
Methylene Chloride	ug/l	<50	NA	<19	<5.0	<9.5	<100	<19	<1.0	NA	<1.9	<1.0	<1.9	<25	<1.0	<1.9	<1.9
1,1,2-Trichloroethane	ug/l	<50	NA	<10	<5.0	<5.0	<100	<10	<1.0	NA	<1.0	<1.0	<1.0	<25	<1.0	<1.0	<1.0
Bromodichloromethane	ug/l	<50	NA	<6.0	<5.0	<3.0	<100	<6.0	<1.0	NA	<0.6	<1.0	<0.6	<25	<1.0	<0.6	2.4
Carbon Tetrachloride	ug/l	<50	NA	<5.0	<5.0	<2.5	<100	<5.0	<1.0	NA	<0.5	<1.0	<0.5	<25	<1.0	<0.5	<0.5
Chlorinated Pesticides																	
Aldrin	ug/l	<0.50	<2.0	<2.5	<0.20	<0.07	1.7	<1.0	<0.010	<2.0	<0.05	<0.10	<0.15	<1.0	13	<2.5	<0.05
a-BHC	ug/l	15	13	3.5C	<0.20	<0.05	2.1	<1.0	0.027	<2.0	<0.05	3.6	0.77C	21	4.5	3.8C	4.5(2)
b-BHC	ug/l	7.1	9.6	2.1C	<0.20	<0.05	1.4	<1.0	0.096	<2.0	<0.05	2.9	1.6C	52	22	5.7C	14(2)
d-BHC	ug/l	11	17	5.7C	<0.20	<0.05	<0.20	<1.0	0.02	<2.0	<0.05	5.8	4.5C	21	5.9*	5.5C	4(2)
g-BHC	ug/l	18	13	5.1C	<0.20	<0.05	0.67	<1.0	0.044	<2.0	<0.05	0.82	0.48C	17	1.5	2.8C	2.1(2)
Chlordane	ug/l	<5.0	<15	<50	<2.0	<1.0	<2.0	<20	<0.10	<15	<3.0	<1.0	6.5C	<10	<5.0	<50	<1.0
4,4-DDD	ug/l	4.6	9.6	<15	<0.40	<0.3	<0.40	<6.0	<0.020	<2.0	<0.3	<1.0	1.4C	<2.0	<1.0	<15	<0.3
4,4-DDE	ug/l	<1.0	3.3	<5.0	<0.40	<0.1	<0.40	<2.0	<0.020	<2.0	<0.10	<0.20	<0.30	<2	<1.0	<5.0	<0.10
Dieldrin	ug/l	<1.0	5.4	<5.0	<0.40	<0.10	<0.40	<2.0	0.071	<2.0	<0.10	<0.20	<0.30	<2	<1.0	<5.0	<0.10
Endrin	ug/l	1.1	2.6	<4.0	<0.40	<0.08	<0.40	<1.6	0.021	<2.0	<0.08	<0.20	<0.24	<2	<1.0	<4.0	<0.08
Endosulfan I	ug/l	<1.0	<2.0	<7.0	<0.40	<0.14	<0.40	<2.8	<0.020	<2.0	<0.14	<0.20	<0.42	<2	<1.0	<7.0	<0.14
Heptachlor	ug/l	<0.20	<2.0	<2.5	<0.20	<0.05	<0.20	<1.0	<0.010	<2.0	<0.05	0.13	<0.15	<1.0	<0.50	<2.5	<0.05
PCB-1248	ug/l	<25	38	<5.0	<10	<0.1	<10	<2.0	<0.50	<5.0	<0.1	<5.0	<0.30	<50	<25	<5.0	<0.1

TABLE 1-1 SUMMARY OF GROUNDWATER DATA

CHEVRON ORLANDO SITE

OCTOBER 1990 THROUGH APRIL 1993

Well Identification Sample Date Screened Interval (In FT BLS)	Units	MW-1D Oct-91	MW-1D Apr-93	MW-1S Oct-91	MW-1S Apr-93	MW-2D Oct-91	MW-2D Apr-93	MW-2S Oct-91	MW-2S Apr-93	MW-3D Oct-91	MW-3S Oct-91	MW-4D Oct-91	MW-4D Apr-93	MW-4S Oct-91	MW-4S Apr-93
Volatile Organics															
Benzene	ug/l	<1.2	3.6	5.4	1.1	5.7	0.7	<0.6	<0.6	<6.0	<3.0	17	6	<1.2	2.7
Toluene	ug/l	<2.0	5.3	2	1.4	5.2	2	<1.0	<1.0	<10	<5.0	10	6.8	<2.0	1.1
Xylenes	ug/l	520	620	55	100	600	570	<0.9	<0.9	1100	930	1100	470	<1.8	37
Ethylbenzene	ug/l	67	240	53	35	240	88	<0.9	<0.9	96	120	360	150	<1.8	15
Methyl tert-butyl ether	ug/l	<1.8	<5.0	<1.8	<5.0	<4.5	<0.9	<0.9	<0.9	<9.0	<4.5	<4.5	<10	<1.8	<5.0
Chlorobenzene	ug/l	<2.6	11(2)	16C	5(2)	11C	3.4	<1.3	<1.3	<13	<6.5	38C	<2.6	<2.6	13
Chloroform	ug/l	<0.80	15(1)	<1.2	1.4(1)	<2.0	1.3(1)	<0.4	1.7(1)	<4.0	<2.0	<2.0	4	<0.80	<1.0
1,4-Dichlorobenzene	ug/l	<2.0	<1.0	3.2C	8.1(2)	330C	4.6	<1.0	<1.0	<10	41C	530C	14	<2.0	5
1,2-Dichlorobenzene	ug/l	<2.0	2.9(2)	<2.0	3.3(2)	52C	2.4	<1.0	<1.0	<10	17C	50C	4	<2.0	1.5
1,3-Dichlorobenzene	ug/l	<2.2	12(2)	7.4C	<1.0	<5.5	9.1	<1.1	<1.1	<11	<5.5	<5.5	<2.2	<2.2	<1.1
1,1-Dichloroethane	ug/l	<1.2	<0.6	<1.2	<0.6	<3.0	<0.6	<0.6	<0.6	<6.0	<3.0	<3.0	2.8	<1.2	<0.6
1,2-Dichloroethane	ug/l	<2.0	<1.0	2.1C	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<5.0	<2.0	<2.0	<1.0
1,1-Dichloroethene	ug/l	<1.0	<0.6	<1.0	<0.5	<2.5	<0.6	<0.6	<0.6	<5.0	<2.5	<2.5	<1.0	<1.0	<0.5
Methylene Chloride	ug/l	<3.8	<1.9	<3.8	<5.0	<9.5	<1.9	<1.9	<1.9	<19	<9.5	9.3C	<10	<3.8	<5.0
1,1,2-Trichloroethane	ug/l	<0.9	<1.0	2.7	1(2)	<5.0	<1.0	<1.0	<1.0	<10	<5.0	<5.0	<1.4	<0.9	<1.0
Bromodichloromethane	ug/l	<1.2	0.8	<1.2	0.6(1)	<3.0	0.6(1)	<0.6	<0.6	<6.0	<3.0	<3.0	<1.2	<1.2	2.5
Carbon Tetrachloride	ug/l	<1.0	<0.5	<1.0	1(2)	<2.5	<0.5	<0.5	<0.5	<5.0	<2.5	<2.5	<1.0	<1.0	<0.5
Chlorinated Pesticides															
Aldrin	ug/l	<1.0	<0.05	<0.15	<0.05	<0.50	<0.05	<0.05	<0.05	<0.05	0.22C	<2.5	<0.05	<0.05	<0.05
a-BHC	ug/l	<1.0	2.2(2)	0.26C	0.92(2)	0.68C	<0.05	<0.05	<0.05	<0.05	<0.05	3.2C	5.7(2)	1.3C	4.5(2)
b-BHC	ug/l	<1.0	0.93(2)	0.40C	0.77(2)	<0.50	<0.05	<0.05	<0.05	<0.05	0.61C	4.9C	2.4(2)	1.6C	1.7(2)
d-BHC	ug/l	<1.0	2.49(2)	0.97C	2.9(2)	<0.50	<0.05	<0.05	<0.05	<0.05	<0.05	13C	16(2)	5.9C	5.8(2)
g-BHC	ug/l	<1.0	<0.05	<0.15	<0.05	<0.50	<0.05	<0.05	<0.05	<0.05	<0.05	<2.5	<0.05	<0.05	<0.05
Chlordane	ug/l	<20	<1.0	<3.0	<1.0	<10	<1.0	<1.0	<1.0	<1.0	5.8C	<50	<1.0	<1.0	<1.0
4,4-DDD	ug/l	<6.0	<0.3	<0.90	<0.3	<3.0	<0.3	<0.3	<0.3	<0.3	1.8C	<15	<0.3	<0.3	<0.3
4,4-DDE	ug/l	<2.0	<0.10	<0.30	0.18(2)	<1.0	<0.1	<0.1	<0.1	<0.1	0.74C	<5.0	<0.10	<0.10	<0.10
Dieldrin	ug/l	<2.0	0.19(2)	<0.30	<0.10	<1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<5.0	<0.10	<0.10	0.16(2)
Endrin	ug/l	<1.6	<0.08	<0.24	<0.08	<0.8	<0.08	<0.08	<0.08	<0.08	<0.08	<4.0	<0.08	<0.08	<0.08
Endosulfan I	ug/l	<2.8	<0.14	<0.42	<0.14	<1.4	<0.14	<0.14	<0.14	<0.14	<0.14	<7.0	<0.14	<0.14	<0.14
Heptachlor	ug/l	<1.0	<0.05	<0.15	<0.05	<0.50	<0.05	<0.05	<0.05	<0.05	<0.05	<2.5	<0.05	<0.05	<0.05
PCB-1248	ug/l	<2.0	<0.1	<0.30	<0.1	<1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<5.0	<0.1	<0.1	<0.1

TABLE 1-1 SUMMARY OF GROUNDWATER DATA

CHEVRON ORLANDO SITE

OCTOBER 1990 THROUGH APRIL 1993

Well Identification	Units	MW-A Oct-90 7-17	MW-A Oct-91	MW-A Apr-93	MW-D Oct-90 7-17	MW-D Oct-91	MW-D Apr-93	MW-E Oct-90 7-17	MW-E Sep-91	MW-E Oct-91	MW-F Oct-90 22-32	MW-F Oct-91	MW-G Oct-90 23-33	MW-H Oct-90 7-17	MW-I Oct-90 7-17	MW-I Sep-91	MW-I Oct-91
Sample Date																	
Screened Interval (in FT BLS)																	
Semi-volatiles																	
2-Methylnaphthalene	ug/l	NA	<10	NA	NA	<10	NA	NA	NA	76	NA	<10	NA	NA	NA	NA	<10
Bis(2-ethyl hexyl) phthalate	ug/l	<10	<10	<10	<10	<10	<10	<20	NA	<20	<10	<10	<10	<40	<10	NA	<10
Naphthalene	ug/l	<10	<10	<10	<10	<10	<10	26	NA	61	<10	<10	<10	<40	<10	NA	<10
2-Chlorophenol	ug/l	<10	<10	<10	<10	<10	<10	<20	NA	<20	<10	<10	<10	<40	<10	NA	23
4-Methylphenol	ug/l	NA	<10	NA	NA	<10	NA	NA	NA	<20	NA	<10	NA	NA	NA	NA	<10
2,4-Dichlorophenol	ug/l	<10	<10	<10	<10	<10	<10	<20	NA	<20	<10	<10	<10	<40	<10	NA	140
Isopherone	ug/l	<10	<10	<10	<10	<10	<10	<20	NA	<20	<10	<10	<10	56	<10	NA	<10
2,4-Dimethylphenol	ug/l	<10	<10	<10	<10	<10	<10	<20	NA	<20	<10	<10	<10	<40	<10	NA	<10
Phenol	ug/l	<10	<10	<10	<10	<10	<10	<20	NA	<20	<10	<10	<10	46	<10	NA	<10
Pyrene	ug/l	<10	<10	<10	<10	<10	<10	<20	NA	<20	<10	<10	<10	<40	<10	NA	<10
Organophosphorus Pesticides																	
Demeton-O	ug/l	<0.50	<10	<1	<0.5	<10	<1	<0.50	NA	<10	<0.5	<10	<0.5	<0.50	<0.5	NA	<10
Demeton-S	ug/l	<0.50	NA	NA	<0.5	NA	NA	2.5	NA	NA	<0.50	NA	<0.5	130	<0.5	NA	NA
Ethyl Parathion	ug/l	<0.050	<10	<1	<0.05	<10	<1	<0.050	NA	<10	<0.05	<10	<0.05	<0.05	<0.05	NA	<10
Methyl Parathion	ug/l	<0.050	<10	<1	<0.05	<10	<1	<0.050	NA	<10	<0.05	<10	<0.05	<0.05	<0.05	NA	<10
Metals																	
Arsenic	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA	26	BDL	BDL	BDL	30	BDL	NA	12
Chromium	ug/l	100	70	7	11	220	10	15	NA	120	BDL	BDL	170	11	BDL	NA	70
Zinc	ug/l	54	NA	NA	35	NA	NA	25	NA	NA	BDL	NA	20	BDL	BDL	NA	NA
Lead	ug/l	NA	NA	BDL	NA	NA	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

BDL = Below Detection Limit.

NA = Not Analyzed.

1 = Analyte is found in the associated blank.

2 = Compound confirmed by secondary column.

C = Compound confirmed by secondary column.

3 = Compound not confirmed - coelution on secondary column.

TABLE 1-1 SUMMARY OF GROUNDWATER DATA

CHEVRON ORLANDO SITE

OCTOBER 1990 THROUGH APRIL 1993

Well Identification	Units	MW-J Oct-90 7-17	MW-J Sep-91	MW-J Oct-91	MW-K Oct-90 23-33	MW-K Oct-91	MW-L Oct-90 7-17	MW-L Oct-91	MW-M Oct-90 12-22	MW-M Sep-91	MW-M Oct-91	MW-N Oct-90 7-17	MW-N Oct-91	MW-O Oct-90 7-17	MW-P Oct-90 12-22	MW-P Oct-91	MW-P Apr-93
Semi-volatiles																	
2-Methylnaphthalene	ug/l	NA	NA	20	NA	16	NA	<10	NA	NA	<10	NA	<10	NA	NA	<10	NA
Bis(2-ethyl hexyl) phthalate	ug/l	<40	NA	<10	<10	<10	<40	11	<10	NA	<10	<10	<10	<10	<10	<10	<10
Naphthalene	ug/l	<40	NA	17	<10	14	<40	24	<10	NA	<10	<10	<10	<10	<10	<10	<10
2-Chlorophenol	ug/l	<40	NA	<10	<10	<10	<40	<10	<10	NA	<10	<10	<10	<10	<10	<10	<10
4-Methylphenol	ug/l	NA	NA	12	NA	<10	NA	10	NA	NA	<10	NA	<10	NA	NA	<10	NA
2,4-Dichlorophenol	ug/l	<40	NA	<10	<10	<10	<40	<10	<10	NA	<10	<10	<10	<10	<10	<10	<10
Isopherone	ug/l	44	NA	<10	<10	<10	56	<10	<10	NA	<10	<10	<10	<10	<10	<10	<10
2,4-Dimethylphenol	ug/l	<40	NA	<10	<10	<10	<40	<10	<10	NA	<10	<10	<10	<10	<10	<10	<10
Phenol	ug/l	<40	NA	<10	<10	<10	46	<10	<10	NA	<10	<10	<10	<10	<10	<10	<10
Pyrene	ug/l	<40	NA	<10	<10	<10	<40	<10	<10	NA	<10	<10	<10	<10	<10	<10	<10
Organophosphorus Pesticides																	
Demeton-O	ug/l	<0.50	NA	<10	<0.50	<10	<0.50	<10	<0.50	NA	<10	<0.50	<10	1.1	<0.50	<10	<1
Demeton-S	ug/l	46	NA	NA	<0.50	NA	21	NA	<0.50	NA	NA	<0.50	NA	<0.50	<0.50	NA	NA
Ethyl Parathion	ug/l	<0.050	NA	<10	<0.050	<10	<0.050	<10	<0.050	NA	<10	<0.050	<10	<0.050	110	<10	15(2)
Methyl Parathion	ug/l	<0.050	NA	<10	<0.050	<10	<0.050	<10	<0.050	NA	<10	<0.050	<10	<0.050	0.16	<10	<1
Metals																	
Arsenic	ug/l	25	NA	35	BDL	BDL	82	43	BDL	NA	45	BDL	BDL	BDL	BDL	12	BDL
Chromium	ug/l	31	NA	200	BDL	BDL	38	150	BDL	NA	250	BDL	BDL	BDL	59	140	BDL
Zinc	ug/l	41	NA	NA	24	NA	BDL	NA	27	NA	NA	42	NA	44	53	NA	NA
Lead	ug/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	BDL

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TABLE 1-1 SUMMARY OF GROUNDWATER DATA
CHEVRON ORLANDO SITE
OCTOBER 1990 THROUGH APRIL 1993

Well Identification Sample Date Screened Interval (in FT BLS)	Units	MW-1D Oct-91	MW-1D Apr-93	MW-1S Oct-91	MW-1S Apr-93	MW-2D Oct-91	MW-2D Apr-93	MW-2S Oct-91	MW-2S Apr-93	MW-3D Oct-91	MW-3S Oct-91	MW-4D Oct-91	MW-4D Apr-93	MW-4S Oct-91	MW-4S Apr-93
Semi-volatiles															
2-Methylnaphthalene	ug/l	<10	NA	<10	NA	<10	NA	<10	NA	<10	<10	38	NA	<10	NA
Bis(2-ethyl hexyl) phthalate	ug/l	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Naphthalene	ug/l	<10	40	<10	<10	<10	<10	<10	<10	<10	<10	30	<10	<10	<10
2-Chlorophenol	ug/l	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
4-Methylphenol	ug/l	<10	NA	<10	NA	<10	NA	<10	NA	<10	<10	<10	NA	NA	NA
2,4-Dichlorophenol	ug/l	<10	<10	<10	<10	<10	<10	<10	<10	24	<10	<10	<10	<10	<10
Isopherone	ug/l	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2,4-Dimethylphenol	ug/l	<10	<10	<10	<10	13	<10	<10	<10	<10	<10	<10	<10	<10	<10
Phenol	ug/l	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Pyrene	ug/l	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	12	<10	<10	<10
Organophosphorus Pesticides															
Demeton-O	ug/l	<10	<1	<10	<1	<10	<1	<10	<1	<10	<10	<10	<1	<10	<1
Demeton-S	ug/l	NA													
Ethyl Parathion	ug/l	<10	<1	<10	<1	<10	<1	<10	<1	<10	<10	<10	<1	<10	<1
Methyl Parathion	ug/l	<10	<1	<10	<1	<10	<1	<10	<1	<10	<10	<10	<1	<10	<1
Metals															
Arsenic	ug/l	BDL	18	BDL	BDL	BDL	BDL	43	BDL	BDL	BDL	BDL	BDL	26	BDL
Chromium	ug/l	BDL	41	360	77	BDL	8	210	1400	BDL	60	BDL	27	120	35
Zinc	ug/l	NA													
Lead	ug/l	NA	22	NA	32	NA	NA	35	NA	NA	NA	NA	10	NA	19

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